

# Mineral Industry Surveys

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## VANADIUM IN JUNE 2004

Reported domestic consumption of vanadium in June 2004 was about 6% less than that of the previous month and was about 3% less than that of June 2003, according to the U.S. Geological Survey. Year-to-date consumption of vanadium from January through June was about 13% more than during the same period in 2003. Consumer stocks of vanadium, in all forms, were 238 metric tons (t) at the beginning of 2004, and 201 t at the end of June.

According to Ryan's Notes (2004c), U.S. ferrovanadium (FeV) prices ranged from \$12.044 to \$12.444 per pound of vanadium content in June, as compared with \$12.475 to \$12.900 in May. European FeV prices ranged from \$24.417 to \$25.139 per kilogram (kg) in June as compared with \$26.375 to \$27.375 in May (Ryan's Notes, 2004a). In June, vanadium pentoxide ( $V_2O_5$ ) prices ranged from \$5.739 to \$5.878 per pound, as compared with \$5.800 to \$6.000 in May.

Metallurg Inc. reportedly made its \$5.5 million, semiannual interest payment on June 18, 2004, on a \$121 million senior note. The payment was due on June 1 but under terms of the indenture the company could make the payment during a 30-day grace period without triggering default. Metallurg is pursuing refinancing and restructuring its senior indebtedness to ensure its long-term viability. Metallurg owns Metallurg Vanadium, a

division of Shieldalloy Metallurgical Corporation (Ryan's Notes, 2004b).

The vanadium market softened owing to slowing Chinese demand, which allowed more material to flow to the European market. The downturn in the Chinese steel sector is related to tighter government regulations to prevent the steel industry from overheating. Chinese ferrovanadium imports catapulted to 612,860 kg in the first 4 months of the year from 60,000 kg in the same period of 2003 (Ryan's Notes, 2004a). Main suppliers were Russia, with 297,349 kg compared with 0 kg, and South Africa, with 207,536 kg, up from 60,000 kg in January–April 2003. Additionally, Russian producer Tulachermet reportedly was aggressively exporting vanadium materials to Eastern Europe and Ukraine at discounted prices (Metal Bulletin Research, 2004).

### References Cited

- Metal Bulletin Research, 2004, Vanadium highlights: Metal Bulletin Research, Ferro-alloys Monthly, no. 142, June 21, p. 15.  
Ryan's Notes, 2004a, Chinese ferrovanadium imports catapulted: Ryan's Notes, v. 10, no. 23, June 7, p. 4.  
Ryan's Notes, 2004b, Ferroalloy notes: Ryan's Notes, v. 10, no. 25, June 21, p. 4.  
Ryan's Notes, 2004c, [untitled]: Ryan's Notes, v. 10, no. 27, July 5, p. 4.

TABLE 1  
U.S. CONSUMPTION AND CONSUMER STOCKS OF VANADIUM, BY FORM<sup>1</sup>

(Kilograms, contained vanadium)

	2003 <sup>p</sup>		2004			
			May		June	
	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium <sup>2</sup>	2,860,000	201,000	277,000 <sup>r</sup>	204,000	262,000	193,000
Vanadium-aluminum alloy	W	W	W	W	W	W
Other <sup>3</sup>	195,000	37,400	7,510	10,600	5,390	8,330
Total	3,060,000	238,000	285,000 <sup>r</sup>	214,000	267,000	201,000

<sup>p</sup>Preliminary. <sup>r</sup>Revised. W Withheld to avoid disclosing company proprietary data; included with "Other."

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes other vanadium-iron-carbon alloys as well as vanadium oxides added directly to steel.

<sup>3</sup>Includes other vanadium alloys, vanadium metal, vanadium pentoxide, vanadates, chlorides, other specialty chemicals, and items indicated by symbol W.

TABLE 2  
U.S. CONSUMPTION OF VANADIUM, BY END USE<sup>1</sup>

(Kilograms, contained vanadium)

	2003 <sup>p</sup>	2004		
		May	June	Year to date <sup>2</sup>
Steel:				
Carbon	782,000	79,100 <sup>r</sup>	65,200	456,000
High-strength low-alloy	928,000	93,600 <sup>r</sup>	92,500	574,000
Stainless and heat-resisting	26,800	5,360	5,360	32,200
Full alloy	802,000	80,900 <sup>r</sup>	82,800	516,000
Tool	261,000	17,900	15,300	92,900
Total steel	2,800,000	277,000 <sup>r</sup>	261,000	1,670,000
Superalloys	13,800	547	735	3,950
Miscellaneous and unspecified <sup>3</sup>	242,000	7,270	5,120	98,000
Total consumption	3,060,000	285,000 <sup>r</sup>	267,000	1,770,000

<sup>p</sup>Preliminary. <sup>r</sup>Revised.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes revisions to prior month's data.

<sup>3</sup>Includes cast irons, alloys excluding steel and superalloys, chemical and ceramic uses, and other miscellaneous and unspecified uses.

TABLE 3  
U.S. IMPORTS AND EXPORTS OF ALUMINUM-VANADIUM MASTER ALLOY AND  
VANADIUM METAL, INCLUDING WASTE AND SCRAP<sup>1</sup>

(Kilograms, gross weight)

	Aluminum-vanadium master alloy		Vanadium metal, including waste and scrap	
	Quantity	Value	Quantity	Value
Imports for consumption:				
2003	232,000	\$425,000	186,000	\$2,850,000
2004:				
March	--	--	4,070	267,000
April	19,000	54,100	1,290	155,000
May:				
Germany	--	--	9,320	206,000
Russia	--	--	430	27,300
Total	--	--	9,750	233,000
Year to date	19,000	54,100	17,100	974,000
Exports:				
2003	6,710,000	16,700,000	201,000	3,910,000
2004:				
March	1,320,000	2,480,000	28,900	433,000
April	922,000	1,820,000	38,500	586,000
May:				
Canada	81,200	194,000	--	--
Germany	--	--	10,900	115,000
Hong Kong	1,030	30,400	--	--
Japan	14,700	62,100	5,000	172,000
Korea, Republic of	1,360	9,840	--	--
Mexico	359,000	712,000	--	--
Norway	4,780	41,100	--	--
United Kingdom	14,600	83,600	18,200	241,000
Total	477,000	1,130,000	34,100	528,000
Year to date	3,290,000	7,010,000	107,000	1,730,000

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 4  
U.S. IMPORTS AND EXPORTS OF FERROVANADIUM, VANADIUM PENTOXIDE (ANHYDRIDE) AND  
OTHER OXIDES AND HYDROXIDES OF VANADIUM<sup>1</sup>

(Kilograms, contained vanadium)

	Ferrovanadium		Vanadium pentoxide (anhydride) <sup>2</sup>		Other oxides and hydroxides of vanadium	
	Quantity	Value	Quantity	Value	Quantity	Value
Imports for consumption:						
2003	1,360,000	\$14,300,000	474,000	\$3,610,000	38,700	\$769,000
2004:						
March	343,000	6,610,000	336,000	1,890,000	--	--
April	336,000	6,490,000	60,600	431,000	108,000	1,360,000
May:						
Austria	15,400	432,000	--	--	--	--
Canada	31,000	446,000	--	--	--	--
Czech Republic	75,500	2,140,000	--	--	--	--
Germany	--	--	968	34,200	--	--
India	5,200	115,000	--	--	--	--
South Africa	--	--	109,000	1,260,000	--	--
Swaziland	32,100	424,000	--	--	--	--
Tajikistan	16,400	468,000	--	--	--	--
Total	176,000	4,020,000	110,000	1,300,000	--	--
Year to date	1,360,000	24,600,000	614,000	4,320,000	108,000	1,360,000
Exports:						
2003	397,000	5,420,000	185,000	1,540,000	284,000	2,450,000
2004:						
March	32,000	873,000	199,000	1,510,000	54,100	364,000
April	26,700	592,000	10,500	105,000	36,200	354,000
May:						
Canada	13,200	229,000	--	--	13,300	118,000
France	--	--	--	--	2,440	10,000
Japan	--	--	--	--	694	6,170
Mexico	8,570	247,000	500	6,260	--	--
Saudi Arabia	--	--	737	7,000	--	--
South Africa	--	--	--	--	16,000	74,000
Total	21,700	476,000	1,240	13,300	32,400	208,000
Year to date	103,000	2,370,000	219,000	1,700,000	300,000	2,250,000

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>May include catalysts containing vanadium pentoxide.

Source: U.S. Census Bureau.

TABLE 5  
U.S. IMPORTS FOR CONSUMPTION OF VANADIUM-BEARING ASH, SLAG<sup>1</sup>

(Kilograms, contained vanadium pentoxide)

	Ash and residues		Ash and residues (not from the manufacture of iron and steel)		Slag, from the manufacture of iron and steel	
	Quantity	Value	Quantity	Value	Quantity	Value
2003	4,940,000	\$3,030,000	14,300,000	\$3,140,000	369,000,000	\$6,190,000
2004:						
March	1,410,000	1,860,000	1,740,000	294,000	21,900	32,000
April	--	--	751,000	130,000	16,100,000	1,570,000
May:						
Canada	--	--	1,610,000	244,000	24,200,000	859,000
Germany	--	--	--	--	33,600	60,300
Mexico	780,000	1,900,000	--	--	--	--
Total	780,000	1,900,000	1,610,000	244,000	24,200,000	920,000
Year to date	2,250,000	3,770,000	7,040,000	1,240,000	40,500,000	2,750,000

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 6  
U.S. IMPORTS FOR CONSUMPTION OF  
MISCELLANEOUS VANADIUM CHEMICALS<sup>1</sup>

(Kilograms, contained vanadium)

	Sulfates		Vanadates	
	Quantity	Value	Quantity	Value
2003	--	--	72,900	\$902,000
2004:				
March	--	--	6,530	73,700
April	--	--	6,760	91,500
May:				
Germany	--	--	206	10,300
South Africa	--	--	6,270	60,800
Total	--	--	6,470	71,100
Year to date	--	--	38,000	605,000

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.